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NURSES' ATTITUDE AND AWARENESS OF NUTRITION AND MALNUTRITION: A CROSS-SECTIONAL STUDY ACROSS CLINICAL SETTINGS

Tihana Gaspert[1,2], Luigi Apuzzo[3,4], Stavroula Chante[5,6], Ber Oomen[7], Josefine Declaye[8,7], Elena Brioni[9], Vedrana Vejzovic[10]

[1] University of Maribor, Faculty of Health Sciences, Zitna Ulica 15, 2000 Maribor, Slovenia.
[2] University Hospital Rijeka, Department of Nursing Care, Kresimirova 42, 51000 Rijeka, Croatia.
[3] Health workforce Needs, Standards, and Organizational Models of Health Professions, Italian National Agency for regionals healthcare system AGENAS, Rome, Italy.
[4] International University of Medical Science, UniCamillus, Rome, Italy.
[5] The Royal Wolverhampton NHS Trust, New Cross Hospital, Wolverhampton Road, WV10 0QP, United Kingdom.
[6] Oxford Brookes University, Headington Road, Oxford, United Kingdom.
[7] European Specialist Nurses Organization (ESNO), Brussels, Belgium.
[8] SMILE Simulation Center, University of Liège, Avenue Hippocrate 13, 4000 Liège, Belgium.
[9] IRCCS San Raffaele Hospital, Internal Medicine, Milan, Italy.
[10] Malmö University, Faculty of Health and Society, Department of Care Science, Malmö, Sweden.

Author for correspondence: Tihana Gaspert tihana.batrnek@gmail.com

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ABSTRACT

Background: Nurses play a vital role in educating patients about health and nutrition, empowering them to make informed dietary choices. This study aimed to develop a questionnaire to assess European nurses' knowledge and awareness of nutrition and malnutrition, particularly in relation to oncology and vulnerable patient populations.

Methods: A cross-sectional survey design was employed between February to April 2025. A structured questionnaire was developed based on existing frameworks and distributed to registered nurses across various European countries. Participants were recruited using a stratified random sampling approach to ensure diversity in geographical location, hospital size, and professional experience. The questionnaire assessed nurses' education and training, clinical practices, collaboration with other professionals, sources of information, perceived barriers, and suggestions for improvement. Descriptive analyses were performed, reporting absolute frequencies, percentages, and means.

Results: A total of 98 nurses participated in the survey. The majority recognized nutrition as a vital component of patient care, with 91% acknowledging awareness of the nutritional challenges faced by patients. Despite this, only 48% reported routinely screening for malnutrition, and the use of validated screening tools was inconsistent. While 83% of respondents felt familiar with dietary requirements, just 47% had received formal training in nutritional interventions. Reported barriers to effective nutritional care included lack of time, limited professional autonomy, and inconsistent or conflicting sources of information. Participants expressed a strong interest in further education, particularly in specialized areas such as percutaneous endoscopic gastrostomy (PEG) feeding, nutrition in dementia care, and food labeling.

Conclusions: The findings highlight a clear need for standardized, accessible nutrition education for nurses across Europe. Limitations include

the small, highly educated, and self-selected sample, which may limit generalizability. Findings highlight the need for standardized nutrition education, institutional support, and enhanced interdisciplinary collaboration. Enhancing nurses' competencies through targeted training, institutional support, and interprofessional collaboration can significantly improve the delivery of nutritional care, particularly for oncology patients and other vulnerable populations.

Keywords: *Nursing, nutrition, malnutrition, oncology, patient care, professional development, screening, Europe.*

INTRODUCTION

Nutrition is a fundamental component of nursing care, as it is associated with the prognosis, management, and prevention of chronic diseases (1,2). Understanding of nutrition is contingent upon at least two of the subsequent principles: categorization of food, dietary balance, contemporary dietary recommendations, origins of nutrients, preservation and cooking methods, utilization of food labels, and the correlation between nutrition and illness (3). Globally, dietary factors are responsible for approximately one in five deaths (in many low- and middle-income countries, different forms of malnutrition (including obesity and undernutrition) can coexist within the same population (4).

There is growing recognition of the pivotal role nurses play in managing nutritional issues across diverse patient populations (5). Nurse-led nutritional care is a model in which nurses take primary responsibility for coordinating, managing, and maintaining continuity of nutritional support for patients with dietary needs. Although there is some debate regarding its implementation, it is increasingly acknowledged as an effective and valid approach to nutritional care (6). Qualitative data indicate that nurse-delivered dietary interventions offer several advantages, including the accessibility and availability of the nursing workforce, as well as the consistent and trusting relationships nurses often establish with patients (7). Publications have documented that nurse-guided dietary interventions can enhance dietary intake in older persons and individuals with chronic conditions, highlighting the important role nurses can play in delivering effective nutritional support (1,8,9).

Previous empirical research has highlighted the significance of oncology nurses in advocating for and supporting cancer patients and survivors in maintaining a nutritious diet and managing their weight (5,10). Recent years have seen the emergence of studies on nutritional treatments conducted by nurses for cancer patients and survivors. Dietary therapies in the present cancer care system are overseen by dietitians within hospital settings (11). Due to the rising global population of cancer patients, dietitians may not be sufficient in addressing patients' dietary requirements, as they have the lowest representation among all healthcare experts (12,13). Given the strong evidence supporting nurse-led dietary interventions in non-cancer populations, it is highly likely that the positive effects shown in clinical outcomes would also apply to cancer patients and survivors (1,5,8,9).

Nurses play a vital role in enhancing patients' knowledge and understanding of health and nutrition, empowering them to make informed dietary choices (14). Consequently, beyond the need for professionals with advanced nutrition expertise, it is essential to develop nurses' knowledge tailored to specific patient groups and areas of specialization. Undoubtedly, numerous countries today suffer from a deficiency of regulation and formal, high-quality education for advanced practice nursing, particularly in the field of nutrition nursing practice (15). Unfortunately, the literature has highlighted a lack of knowledge of nutrition among nursing professionals, partly due to their poor education during training. We aimed to develop a questionnaire to investigate European nurses' knowledge and awareness of nutrition and malnutrition related to oncology and vulnerable patients.

METHODS

Study Design:
We employed a cross-sectional survey design from February to April 2025 to provide a comprehensive overview of nurses' current knowledge and attitudes regarding nutrition.

Population and Sampling:
The target population consisted of registered nurses across Europe who work in oncology care and in units caring for high-risk patients. A stratified random sampling technique was used to ensure diversity in geographical location, hospital size, and years of experience. The study was voluntary, anonymous, approved by ESNO board, and conducted according to ethical principles, even though formal Ethical approval was not obtained.

QUESTIONNAIRE DEVELOPMENT

The elements of this questionnaire were reviewed for

their suitability and adaptation by an expert panel comprising nurses and researchers (16). Furthermore, for the development of the questionnaire, we relied on Ajzen's theory on planned behavior, which states that an action requires three premeditated components: attitudes, knowledge, and practice (17). Overall, these items assessed nurses' education and training, clinical practice and collaboration, information sources, barriers, and improvement related to nutrition in clinical practice. Responses on these items were rated using a five-point Likert scale and some dichotomous questions (16). Items covered educational background in nutrition, clinical practices, and interdisciplinary collaboration, as well as information sources, perceived barriers, and suggestions for improvement. The questionnaire was pilot tested with a small sample of early-career nurses (n=5) to ensure clarity and relevance, leading to minor refinements in language and formatting before broader administration. Data was collected through an online platform, where participants accessed the questionnaire via a link distributed via email, social networks, and other communication channels.

STATISTICAL ANALYSIS

To perform the analysis, the exported dataset—originally in .CSV format—was first organized to ensure accessibility and clarity. As is common with software exports, the data appeared in a condensed format with multiple responses contained in single lines, which made interpretation challenging. The file was reformatted in Microsoft Excel, with responses realigned into appropriate columns corresponding to each survey question. Descriptive and comparative analyses were performed using Excel PivotTables. Data were analyzed in terms of absolute frequencies, percentages, and means, where applicable. Variables were also grouped by demographic factors such as age group. This preprocessing and cleaning phase was essential to ensure that the subsequent analysis accurately reflected the underlying patterns in the data.

RESULTS

A total of 98 nurses from over 25 European countries participated in the survey. The majority identified as female (56%), with males comprising 24%, and 19% choosing not to report gender. Respondents were predominantly mid- to late-career professionals, with a mean age of 46.5 years (range: 24–70) and an average of 23.8 years of professional nursing experience (Figure 1).

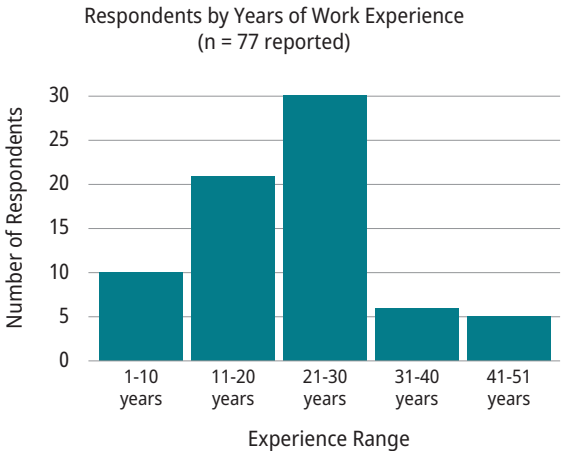

Figure 1. Distribution of work experience

This reflects strong professional experience and maturity in the sample, lending credibility to the insights gathered—particularly around educational needs, confidence in care, and interprofessional collaboration (Figure 2).

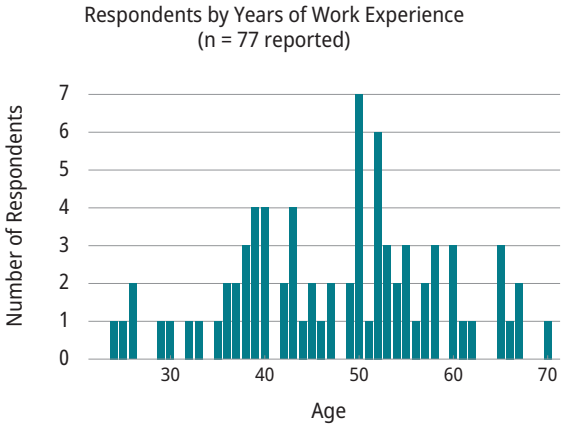

Figure 2. Distribution of Respondent Ages

The educational profile was notably advanced, with over 70% of respondents holding a master's degree or a PhD. This indicates a well-educated group of nurses with strong potential to lead in clinical nutrition practices. Among the 67 respondents working in hospital settings, nurses represented a wide array of clinical departments. The most frequently cited areas included Gastroenterology (10 respondents), Intensive Care Units (7), and Oncology (6)—highlighting strong representation in high-specialty and acute care environments.

KNOWLEDGE AND ATTITUDES ABOUT NUTRITION

Most nurses rated their knowledge of nutrition as positive: 67% (n=51) considered it 'Good' or 'Very Good', while only 8% (n=6) reported 'Poor' or 'Very

Poor' knowledge. When asked about their familiarity with dietary requirements for patients, 83% (n=63) expressed agreement or strong agreement. These results suggest that most respondents feel moderately to well-prepared, though a significant minority still reports average or limited knowledge. The importance of nutrition in patient care was widely recognized: 93% (n=71) of nurses rated it as 'Very' or 'Extremely Important'. Additionally, 72% (n=55) agreed that further training in nutrition would enhance their practice.

Most nurses demonstrated strong awareness of nutritional issues in patient care. In response to the statement "I am aware of the nutritional challenges faced by patients", 91% agreed or strongly agreed, reflecting a shared understanding of the importance of nutrition in clinical practice. Similarly, 83% (n=63) of respondents reported being familiar with the dietary requirements necessary for maintaining patient health. However, 5% (n=4) disagreed, and 12% (n=9) remained neutral—indicating room for improvement through targeted training and continuing professional development (CPD).

Despite this general awareness, practical implementation appears inconsistent. Only 48% (n=38) of nurses routinely screen oncology or vulnerable patients for malnutrition, while 41% (n=32) do not, and 11% (n=11) are unsure. This gap between knowledge and routine practice highlights a need for clearer protocols, stronger institutional support, and enhanced training to ensure consistent nutritional screening across settings. Among those who perform malnutrition screening, the most used tools were the Malnutrition Universal Screening Tool (MUST) and Nutrition Risk Screening (NRS-2002)—each cited by 10 respondents. Other tools included the MNA for the elderly (6) and MST (4). Several nurses reported using multiple tools in combination (e.g., MUST + NRS-2002 + PG-SGA), reflecting some integration of practice. However, over half of respondents did not report using any formal tool, indicating inconsistency or limited adoption of structured screening methods.

When asked about their confidence in delivering nutritional interventions, 79% (n=51) of nurses reported being at least moderately confident, with 38% (n=29) moderately confident and 29% (n=22) very confident. Still, 21% (n=10) expressed low or no confidence, underlining a need for more practical, case-based training to reinforce intervention skills and bridge the gap between knowledge and clinical application.

Nearly half of respondents (47%) had received some form of education or training related to nutritional interventions, either through formal education (15), workplace programs (10), or a combination of both. However, 22% had not, and another 7% were unsure. Training formats varied widely—from academic courses and certified programs to self-directed learning and informal peer exchanges. This variation in both depth and structure underscores the lack of a standardized training pathway across Europe. Many respondents expressed a desire for harmonized structured education models that include evidence-based content and practical application in clinical settings. Nurses reported a multimodal approach to staying informed. The most frequently used sources included peer-reviewed journals, workshops, online courses/webinars, colleagues, and conferences. However, 33% (n=32) did not report any sources, which may indicate barriers to access or inconsistent engagement with continuing education. There is strong endorsement for continuing education in nutrition: 72% (n=55) agreed or strongly agreed that additional courses enhance their practice, with only 6% (n=6) expressing disagreement. Responses to the importance of nutrition in care were even more decisive: 93% (n=71) rated nutrition as "very" or "extremely" important in-patient care, clearly affirming its central role in nursing practice.

Communication with dietitians or nutrition specialists was variable. While 42% (n=32) of nurses reported frequent or consistent collaboration, 28% (n=22) communicated rarely or never, and 27% (n=21) said it occurred only occasionally. This suggests that while the value of interprofessional collaboration is recognized, there is a need to formalize and strengthen these connections—particularly in settings treating nutrition-sensitive or high-risk patient populations. Nurses identified several recurring obstacles to accessing reliable nutritional information. The most cited barrier was lack of time, mentioned by 36 respondents, either as a standalone issue or in combination with others. Limited professional autonomy followed closely, raised by 24 participants, indicating that many nurses feel constrained in their ability to act on or implement nutritional knowledge. Thirteen respondents highlighted the problem of conflicting information sources, which adds further uncertainty and can hinder evidence-based practice. Notably, 40 respondents did not answer this question at all, which may suggest limited experience with nutritional information pathways or a lack of structured exposure to relevant resources. One participant also pointed to systemic limitations, referring to inadequate training among decision-makers responsible for prescribing and administering nutritional interventions. These findings underscore the need for a multifaceted response that addresses time constraints, enhances nurse autonomy, and creates a centralized, evidence-based framework for clinical nutrition information.

When asked about the specific areas in which they would like to receive additional training, most respondents did not provide an answer—81 out of 98

skipped the question entirely. However, those who did respond offered highly targeted and clinically relevant suggestions. These included nutrition for vulnerable patient groups such as those with dementia, terminal illness, or hematologic conditions; the management of nutrition in critical care settings, including PEG feeding; and broader topics such as food quality, label interpretation, and supplement use. A small number of participants also expressed a general desire for stronger integration of nutrition education into undergraduate nursing programs. The range and specificity of these responses highlight the need for modular, specialty-focused professional development, as well as a firmer foundation in nutrition during initial nurse training. In terms of support needed from healthcare institutions, only 26 respondents shared detailed feedback, but the responses were rich in insight. Many emphasized the need for structured and ongoing educational opportunities, such as refresher courses, workshops, and webinars. Others stressed the importance of institutional support in the form of allocated time for training, access to interdisciplinary resources like dietitian-led sessions, and formal recognition of nutrition-related competencies within nursing roles. A few also mentioned the value of incentives for continuous professional development and participation in interdisciplinary research or care planning. Despite the relatively low response rate to this question, the consistency in themes reveals a shared understanding among respondents: nurses are willing and eager to improve their capacity in nutritional care, but they need systemic backing to do so effectively.

DISCUSSION

This survey provides a valuable snapshot of the current landscape of nutritional knowledge, attitudes, and practices among nurses across Europe, with a particular focus on oncology and other vulnerable patient populations. The findings reveal both strengths and substantial gaps that have direct implications for practice, training, and policy. The respondents represented a highly educated and experienced nursing cohort, with the majority holding advanced degrees and reporting over two decades of clinical experience. This demographic profile strengthens the credibility of the findings and indicates that the identified gaps stem from systemic limitations in training and organizational support, rather than a lack of experience.

Most nurses expressed strong awareness of the nutritional challenges faced by patients and affirmed the importance of nutrition in clinical care (18,19). Yet, this awareness does not consistently translate into routine clinical practice. For example, while the majority acknowledged familiarity with dietary requirements, fewer than half routinely screened patients for malnutrition (20). Even among those who do, the use of validated tools, such as MUST or NRS-2002, was inconsistent, with more than half of the respondents not reporting any formal tool usage. These inconsistencies indicate that the systems and processes needed to incorporate nutrition into routine nursing practice are still insufficiently developed (21). In line with current international recommendations, systematic nutritional screening and intervention should be integrated into routine nursing practice. Nurses are well-positioned to implement validated screening tools to identify patients at risk of malnutrition and initiate timely referrals to dietitians or nutrition specialists. Practical strategies include embedding screening protocols into electronic health records, providing nurses with dedicated time for nutritional assessments, and offering targeted training modules focused on evidence-based nutritional care. By aligning institutional policies with these guidelines, healthcare organizations can empower nurses to translate their knowledge and positive attitudes into consistent, high-quality nutritional interventions, thereby improving patient outcomes across diverse clinical settings (22).

Despite the clear benefits of providing nutritional assessment, support, and counselling to cancer patients, research reveals a general lack of adequate preparation and training among nurses. Oncology nurses, who are chiefly responsible for this vital role, often face challenges due to gaps in knowledge, self-confidence, and self-efficacy. These deficiencies significantly hinder their ability to effectively deliver nutritional assessment and counselling to cancer patients. Nutritional assessment and assistance constitute a minor component of undergraduate nursing courses and instruction (23). Confidence in delivering nutritional interventions was moderate, with 79% of nurses reporting at least some confidence. However, the relatively low proportion reporting high or extreme confidence—and the 21% who felt only slightly or not at all confident—highlights the need for more hands-on, practical training. This aligns with the finding that only 47% had received any formal or structured education on nutritional interventions, and that the nature of this training varied widely in terms of content, duration, and delivery method. This is consistent with previous research, which also identified low baseline knowledge among nurses and highlighted the critical need for ongoing training (24,25). Research shows that 43% of cancer nurses considered themselves to have an inadequate understanding of offering nutritional guidance (26).

Nutritional evaluation and guidance are essential

components of cancer treatment. They involve providing guidance and education aimed at modifying patients' dietary habits and behaviours. Promoting optimal nutritional care is essential to prevent dietary issues that could negatively affect treatment plans and patient outcomes (24). Information-seeking behavior among respondents was active and diverse, with many citing journals, webinars, workshops, and peer discussions. However, a significant portion of participants who did not report any sources of information suggests uneven access to continuing education. Moreover, barriers such as lack of time, low professional autonomy, and conflicting information further hinder consistent knowledge application (27).

The survey also revealed a strong appetite for further training, particularly in specialized areas like nutrition in dementia, PEG feeding, and food quality. This supports the development of targeted CPD modules that address both foundational and advanced topics. Additionally, institutional factors play a critical role. Nurses advocated for improved collaboration with dietitians, increased protected time for training, and formal acknowledgment of their role in providing nutritional support (28,29).

This study reinforces findings from previous research: although nurses are well-positioned to lead or support nutritional care, they are often limited by structural constraints, inadequate education, and unclear clinical expectations. For example, prior reviews have shown that nurse-led nutrition interventions can improve outcomes, but require proper training and institutional alignment (5,30,31).

While the survey offers important insights, it is not without limitations. Most participants were highly educated, which may restrict the generalizability of the findings to broader or more diverse populations. Second, the relatively small sample size limits the statistical power of the analyses and may affect the robustness of the conclusions. Since participation was voluntary, the results may be biased toward nurses who already have an interest in nutrition. This study is entirely descriptive in nature; therefore, the findings should be interpreted within this scope, recognizing that causal inferences cannot be drawn.

Nonetheless, the implications are clear: improving nutrition in patient care requires more than awareness—it requires investment. Healthcare institutions must recognize and empower nurses as co-leaders in nutritional care. Standardized training, access to reliable resources, interdisciplinary collaboration, and protected time for ongoing education are essential steps in bridging the gap between knowledge and practice.

CONCLUSION

This study highlights a clear consensus among European nurses on the importance of nutrition in patient care, particularly for oncology and vulnerable populations. While most respondents reported strong awareness and positive attitudes toward nutrition, significant gaps persist in routine practice, formal training, and institutional support. The gap between knowledge and consistent practice highlights systemic barriers—such as time constraints, inadequate training opportunities, and limited autonomy—that need to be addressed at both educational and organizational levels.

The findings underscore the urgent need for standardized, accessible nutrition education across the nursing continuum, from undergraduate programs to continuing professional development. Moreover, stronger interdisciplinary collaboration and clearer institutional recognition of nurses' roles in nutritional care are essential to bridging the gap between evidence and clinical practice. Future research should aim to include larger and more diverse samples of nurses, extending beyond highly educated groups, to ensure that the findings are more representative of the broader nursing workforce. Expanding participation across different healthcare settings, specialties, and educational backgrounds would strengthen the generalizability of results and provide a more nuanced understanding of practice. In addition, strategies such as recruiting through institutional partnerships could help capture the views of nurses who may not have a pre-existing interest in nutrition. Further studies should also test targeted interventions, such as tailored training programs and institutional policies.

Empowering nurses with the appropriate tools, knowledge, and authority to lead or assist in nutrition interventions can greatly improve patient outcomes. Investing in nurse-led nutritional care is both practical and essential for providing high-quality, comprehensive care in today's complex healthcare settings.

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